



US 20210261956A1

(19) **United States**(12) **Patent Application Publication**
Millett et al.(10) **Pub. No.: US 2021/0261956 A1**(43) **Pub. Date: Aug. 26, 2021**(54) **GENE EDITING TO IMPROVE JOINT
FUNCTION**(71) Applicant: **ORTHO BIO THERAPEUTICS, INC.**,
Edwards, CO (US)(72) Inventors: **Peter J. Millett**, Edwards, CO (US);
Iain Alasdair Russell, Cambridge
(GB); **Matthew J. Allen**, Swaffham
Bulbeck (GB)(21) Appl. No.: **17/241,839**(22) Filed: **Apr. 27, 2021****Related U.S. Application Data**(63) Continuation of application No. 17/166,343, filed on
Feb. 3, 2021, which is a continuation of application
No. 16/916,014, filed on Jun. 29, 2020, now Pat. No.
11,033,590, which is a continuation of application
No. PCT/US2020/014139, filed on Jan. 17, 2020.(60) Provisional application No. 62/794,340, filed on Jan.
18, 2019, provisional application No. 62/894,184,
filed on Aug. 30, 2019, provisional application No.
62/914,635, filed on Oct. 14, 2019.**Publication Classification**(51) **Int. Cl.***C12N 15/11* (2006.01)*A61K 48/00* (2006.01)*C12N 9/22* (2006.01)*C12N 15/86* (2006.01)*A61K 9/127* (2006.01)*A61P 19/02* (2006.01)*A61P 19/06* (2006.01)*A61K 9/00* (2006.01)(52) **U.S. Cl.**CPC *C12N 15/11* (2013.01); *A61K 48/00*
(2013.01); *C12N 9/22* (2013.01); *C12N 15/86*
(2013.01); *C12N 2750/14143* (2013.01); *A61P*
19/02 (2018.01); *A61P 19/06* (2018.01); *A61K*
9/0019 (2013.01); *C12N 2310/20* (2017.05);
A61K 9/127 (2013.01)

(57)

ABSTRACTThe present invention provides compositions and methods
for treating joint disorders that are characterized by an
inflammatory component. In some aspects, the compositions
and methods are to prevent the progression of osteoarthritis
and other arthritides and to treat osteoarthritis and other
arthritides in a mammalian joint.**Specification includes a Sequence Listing.**